

CLAIMS

Sub c1

1. A method for inhibiting vascular smooth muscle cell proliferation, comprising contacting the cell with an isolated nucleic acid encoding a heme oxygenase gene or a functionally equivalent mutant thereof.

5 2. The method of claim 1, wherein said nucleic acid is a eukaryotic expression vector.

Sub c2

3. The method of claim 2, wherein said expression vector is a viral vector.

4. The method of claim 3, wherein said viral vector is an adenoviral vector.

5. The method of claim 4, wherein said adenoviral vector is Ad-HO1.

Sub c3

6. The method of claim 1, wherein said expression vector encoding said heme oxygenase I gene is complexed with a nonviral vector.

7. The method of claim 6, wherein said nonviral vector is a liposome.

Sub c4

8. A method of inhibiting vascular smooth muscle cell proliferation in a patient, comprising administering to the patient an isolated nucleic acid encoding a heme oxygenase gene or a functionally equivalent mutant thereof.

9. The method of claim 8, wherein administration is through a catheter.

Sub c5

10. The method of claim 9, wherein the catheter is selected from the group consisting of injection catheters, balloon catheters, double balloon catheters, microporous balloon catheters, channel balloon catheters, infusion catheters, perfusion catheters.

11. The method of claim 8, wherein the administration is by a device selected from the group consisting of hypodermic needles, needle injection catheters, jet injectors, coated stents, bifurcated stents, vascular grafts, stent grafts, and coated wire coils.

5 12. The method of claim 11, wherein the nucleic acid coats the device.

13. The method of claim 12, wherein the nucleic acid is contained within a recombinant cell.

10 14. The method of claim 13, wherein the recombinant cell is an endothelial cell.

15 15. A medical device comprising an isolated nucleic acid encoding HO1.

16. The medical device of claim 15, wherein the device is catheter.

17. The medical device of claim 16, wherein the catheter is selected from the group consisting of injection catheters, balloon catheters, double balloon catheters, microporous balloon catheters, channel balloon catheters, infusion catheters, perfusion catheters.

20 18. The medical device of claim 15, wherein the device is selected from the group consisting of hypodermic needles, needle injection catheters, jet injectors, coated stents, bifurcated stents, vascular grafts, stent grafts, and coated wire coils.

23 19. The medical device of claim 18, wherein the nucleic acid coats the device.

25 20. The medical device of claim 19, wherein the nucleic acid is contained within a recombinant cell.

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~~21~~. The medical device of claim ²⁵~~20~~, wherein the recombinant cell is an endothelial cell.

¹⁶
~~22~~. A kit comprising a medical device of claims ~~15~~.

¹⁸
~~23~~. A kit comprising a medical device of claims ¹⁷~~18~~.

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~~24~~. A kit comprising a medical device of claims ¹⁹~~17~~.

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~~25~~. A kit comprising a medical device of claims ²¹~~18~~.

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~~26~~. A kit comprising a medical device of claims ²³~~19~~.

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~~27~~. A kit comprising a medical device of claims ²⁵~~20~~.

28. A kit comprising a medical device of claims ²⁷~~21~~.